## Claims

1. A process for forming an electrical conductor on a substrate, consisting essentially of:

(a) providing an ink comprised of a metallic chelate;

(b) printing directly thereon the ink; and

(c) decomposing the ink wherein the metal-chelate is converted to a solid metal conductor on the substrate.

2. The process of claim 1 wherein the ink further comprises a binder or stabilizer, or both.

3. The process of claim 1 wherein the ink is printed at a pressure in the range of 200 to 700 torr.

4. The process of claim 1 wherein the metal conductor has a line width less than 100 microns.

5. The process of claim 1 wherein the metal conductor a grain size in the range of 50 to 200 nm.

6. The process of claim 1 wherein the metal conductor has a thickness less than 1 micron.

7. The process of claim 1 wherein the metal is selected from the group consisting of copper, silver, gold, aluminum or nickel.

8. The process of claim 1 wherein the metal-chelate is selected from a group consisting of metal β-diketonates, metal amides, metal organometallics and metal alkoxides.

9. The process of claim 1 wherein the metal-chelate is CU(hfa)•VTMS, $[Ag(hfa)(diglyme)]_2$, Ag(hfa)(COD) or ethyl(trimethlyphosphine)gold(I).

10. The process of claim 1 wherein the substrate is selected from a group consisting of glass, polymer, and conformal.

11. The process of claim 1 wherein decomposing the metal-chelate is by heating in nitrogen or air at a temperatures less than 400°C.

12. The process of claim 1 wherein the ink further comprises metallic particles having a size in the range of 1 to 100 nm.

13. The process of claim 5 wherein the polymer is Kapton.

14. The process of claim 12 wherein the particles are selected form a group consisting of copper, silver, or gold.

15. The process of claim 12 wherein the ink further comprises a solvent.

16. The process of claim 12 wherein the metal-chelate is selected from a group consisting of metal β-diketonates, metal amides, metal organometallics and metal alkoxides.

17. The process of claim 12 wherein the metal chelate is selected from a group consisting essentially of CU(hfa)•VTMS, Ag(hfa)•tetraglyme, and ethyl(trimethlyphosphine)gold(I).

18. The process of claim 12 wherein the substrate is selected from the group consisting of glass, polymer, and conformal.

19. The process of claim 12 wherein decomposing is by heating in air or nitrogen at temperatures less than about 300°C.

20. The process of claim 15 wherein the solvent is toluene.

21. The process of claim 15 wherein the susbstrate is selected from the group consisting of glass, polymer, and conformal.

22. The process of claim 15 wherein decomposing is by heating in air or nitrogen at temperatures of less than 300°C.

23. The process of claim 15 wherein the particles are selected form a group consisting of copper, silver, or gold.

24. The process of claim 15 wherein the metal-chelate is selected from a group consisting of metal β-diketonates, metal amides, metal organometallics and metal alkoxides.

25. The process of claim 15 wherein the metal chelate is selected from a group consisting essentially of Cu(hfa)•COD, CU(hfa)•VTMS, $[Ag(hfa)]_2•H_2O$, Ag(hfa)•tetraglyme, $[Ag(hfa)(diglyme)]_2$, Ag(hfa)(COD), $Ag(hfa)(SEt_2)$ and ethyl(trimethlyphosphine)gold(I).